931588

PATENT SPECIFICATION

DRAWINGS ATTACHED

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Inventor: MAURICE ARMITAGE SIMPSON

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COMPLETE SPECIFICATION

Improvements relating to Axlebox Assemblies for Railway Vehicles

We, THE ENGLISH ELECTRIC COMPANY LIMITED, of Queens House, 28 Kingsway, London, W.C.2, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to axlebox assemblies for railway vehicles.

According to the invention an axlebox assembly for a railway vehicle includes at least one set of resilient units carried by the axlebox assembly, the resilient units each being constituted by an inner and an outer shell separated by resilient material bonded or otherwise secured thereto, adjacent resilient units being separated by a transfer disc arranged so that the centre part of the transfer disc engages the inner shell of one resilient unit and the outer part of the disc engages the outer shell of the other resilient unit, the arrangement being such that the axlebox is capable of being coupled to the vehicle through said set or sets of resilient units so that relative vertical movement between the axlebox and the vehicle frame or bogie stresses the resilient material of each unit in shear.

Further preferred features of the invention will appear from the following description with reference to the drawing accompanying the Provisional Specification which shows the relevant parts of a preferred form of axlebox according to the invention. The left-hand half is an outside elevation and the right-hand half is a longitudinal section.

Referring now to the drawing, an axlebox 10 with a journal bearing 11 for the axle, is formed with a cylindrical bore 12 on each side of the bearing, the bores being recessed at the bottom and having an annular ledge 13 therein.

Three resilient bushes 14, of rubber material bonded to inner and outer shells 15 and 16 respectively, are mounted in each bore 12. The outer shell 16 of the bottom bush in each bore rests on the ledge 13, whilst the middle bush is separated from the top and bottom bushes by transfer discs 17. The transfer discs are of dished form. The centre part of each disc rests on the inner shell 15 of the bush below, and the rim supports the outer shell 16 of the bush above. The outer shells 16 are a sliding fit in the bores.

A vertical guide pillar 18, projecting from the vehicle frame or bogie, is slidable in the bushes, and a shoulder 19 on the pillar 18 engages the inner shell of the top bush in each bore.

The load is applied to the inner shell 15 of the top bush 14 and is resisted by the resilient material in shear which in turn transfers the load to the outer shell 16 resting on the outer rim of the upper transfer disc 17. This disc transfers the load to the inner shell 15 of the middle bush, thereby loading this bush in the same manner as the top bush, whilst the lower transfer disc 17 loads the bottom bush likewise. The three bushes, therefore, act in series and thus provide adequate deflection where a single resilient bush would be insufficient. Clearances are provided between the transfer discs and the bores 12 to ensure that all lateral forces applied to the axlebox are taken up by compressing the resilient material in the bushes.

A spiral groove may be provided in the bores for lubrication purposes, as indicated at 20.

The bores may also be used to provide hydraulic damping by the addition of a liquid and a series of grooves or ports.

In an alternative embodiment of the invention, the transfer discs are inverted so that load on the inner shell is transferred to the outer shell of the bush below. In this case, the load is applied to the outer shell 16 of the top bush 14 and is transferred to the axlebox

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through the inner shell 15 of the bottom bush 14.

In a further embodiment of the invention, the guide pillars project from the axlebox, and the bores are in the vehicle frame.

WHAT WE CLAIM IS:—

1. An axlebox assembly for a railway vehicle including at least one set of resilient units carried by the axlebox assembly, resilient units each being constituted by an inner and an outer shell separated by resilient material bonded or otherwise secured thereto, adjacent resilient units being separated by a transfer disc arranged so that the centre part of the transfer disc engages the inner shell of one resilient unit and the outer part of the disc engages the outer shell of the other resilient unit, the arrangement being such that the axlebox is capable of being coupled to the vehicle through said set or sets of resilient units so that relative vertical movement between the axlebox and the vehicle frame or bogie stresses the resilient material of each unit in shear.

2. An axlebox assembly according to Claim 1 wherein in the or each set of resilient units the outer shells of the set are slidably mounted in a bore in the axlebox and the inner shells of the set are slidably mountable on a vertical guide pillar projecting from the vehicle frame or bogie.

3. An axlebox assembly according to Claim 2 wherein in the or each set of resilient units the outer shells of the set are slidably mountable in a bore in the vehicle frame or bogie and the inner shells of the set are slidably mounted on a vertical guide pillar projecting from the axlebox.

4. An axlebox assembly according to any preceding claim, including two sets of said resilient units, one set being arranged fore and the other set aft of the axle bearing.

5. An axlebox assembly substantially as described with reference to the drawing accompanying the Provisional Specification.

F. A. WEBSTER,
Agent for the Applicants.

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931588 PROVISIONAL SPECIFICATION

1 SHEET *This drawing is a reproduction of the Original on a reduced scale*